```
      970         980         990        1000        1010        1020
AGGTTTACCG CATTTTGACA CTAGATGGCA TCCGTCCCAC GGGTAGCAGG TCATGAAGCT
TCCAAATGGC GTAAAACTGT GATCTACCGT AGGCAGGGTG CCCATCGTCC AGTACTTCGA

     1030        1040        1050        1060        1070        1080
GACCAAGGCA AGTCCTTTCA GGGGGAAGAA AATCAGGAAA AAAAAAAATT TTAGAAGCAT
CTGGTTCCGT TCAGGAAAGT CCCCCTTCTT TTAGTCCTTT TTTTTTTTAA AATCTTCGTA

     1090        1100        1110        1120        1130        1140
TTCAAGAAGC AAGATGGAAT ATTTGTACAA AAGAGGTGCT TTCTCCCCCA CCATGCGACC
AAGTTCTTCG TTCTACCTTA TAAACATGTT TTCTCCACGA AAGAGGGGGT GGTACGCTGG

     1150        1160        1170        1180        1190        1200
CGGGAGCTCC ACTGATATGG ACAGAATAGC TTTACAGCTA CATTCAAAAC ACACACACAC
GCCCTCGAGG TGACTATACC TGTCTTATCG AAATGTCGAT GTAAGTTTTG TGTGTGTGTG

     1210        1220        1230        1240        1250        1260
ACACACACAC ACACACACAC ACACACACAC ACACACACAT GTTTTCTTCC CTCCCTCCAC
TGTGTGTGTG TGTGTGTGTG TGTGTGTGTG TGTGTGTGTA CAAAAGAAGG GAGGGAGGTG

     1270        1280        1290        1300        1310        1320
TTCCTCCCAT TCTCTGTGGT CCCAAAGAGA TGACCATATT GACTGTAGAA ATCACACCAC
AAGGAGGGTA AGAGACACCA GGGTTTCTCT ACTGGTATAA CTGACATCTT TAGTGTGGTG

     1330        1340        1350        1360        1370        1380
CATAAAAGCC CATCTGGGAG CCATTTCCAG ACTGATCTTT TTATCATTAA GGTTTGAATT
GTATTTTCGG GTAGACCCTC GGTAAAGGTC TGACTAGAAA AATAGTAATT CCAAACTTAA

     1390        1400        1410        1420        1430        1440
CTTGCCACGT GTGGGTTTTA ACGTTTTTAG GGATTTTTAT CTAGCGGCAC TCACCTGCTT
GAACGGTGCA CACCCAAAAT TCCAAAAATC CCTAAAAATA GATCGCCGTG AGTGGACGAA

     1450        1460        1470        1480        1490        1500
CCCTGTGAAT GTTCAGAATT CACTGGGCTT GGTCAGCTAA TGGAAATGAT CTATGGTTTG
GGGACACTTA CAAGTCTTAA GTGACCCGAA CCAGTCGATT ACCTTTACTA GATACCAAAC

     1510        1520        1530        1540        1550        1560
ACTTAAATGT GAAAGGAAAA AAAAGAAGGG GGAAAAGGAG GGAGGGAGAA AGAGGGGAAG
TGAATTTACA CTTTCCTTTT TTTTCTTCCC CCTTTTCCTC CCTCCCTCTT TCTCCCCTTC

     1570        1580        1590        1600        1610        1620
GGAAAACTGC CTTTTATGCC TATTGCTACT CTAACATTTT GTCTCTCACC TTCCACTTGG
CCTTTTGACG GAAAATACGG ATAACGATGA GATTGTAAAA CAGAGAGTGG AAGGTGAACC

     1630        1640        1650        1660        1670        1680
TTCTTCAATG GAAAGACTGG ATAGAAAGCT GGGAGCCAGC CAGGGATAGG AGGAGTGTGT
AAGAAGTTAC CTTTCTGACC TATCTTTCGA CCCTCGGTCG GTCCCTATCC TCCTCACACA

     1690        1700        1710        1720        1730        1740
GTGTGTGTGG GGGGGGGTGG GCAGCAAGCA GAGCCTTAGA GACAGAGAAG AGCCTGCTAG
CACACACACC CCCCCCCACC CGTCGTTCGT CTCGGAATCT CTGTCTCTTC TCGGACGATC

     1750        1760        1770        1780        1790        1800
AGAYCATGAG CTTYCTTTGA GACCCCTAGT GCTAACAGGA ATAGTTCCTA ACCAGGTAGC
TCTRGTACTC GAARGAAACT CTGGGGATCA CGATTGTCCT TATCAAGGAT TGGTCCATCG

     1810        1820        1830        1840        1850        1860
TGTGGTCACG TGACTCGGCT GGAAGSCCTG GCTTTGTCTT TTTGCTTGCT GTGCAGCCTT
ACACCAGTGC ACTGAGCCGA CCTTCSGGAC CGAAACAGAA AAACGAACGA CACGTCGGAA
```

FIG. 1

Title: GLP-2 RECEPTOR GENE
PROMOTER AND USES THEREOF
Inventor(s): Daniel J. DRUCKER
DOCKET NO.: 016777/0463

```
      1870       1880       1890       1900       1910       1920
GAACAAACAC CCTGGCCTCT TTGAACCCCA CTATTTCTCA GCCCTCAGAT GAAGAAGTAA
CTTGTTTGTG GGACCGGAGA AACTTGGGGT GATAAAGAGT CGGGAGTCTA CTTCTTCATT

      1930       1940       1950       1960       1970       1980
TGGTACCTTG GAGGATACTG ATGGGTTCAA GTGAACTAGG GCAGAGGGTG GAAGGTTTTG
ACCATGGAAC CTCCTATGAC TACCCAAGTT CACTTGATCC CGTCTCCCAC CTTCCAAAAC

      1990       2000       2010       2020       2030       2040
TAACCATAAA CTGAAGTGGG GTGTTGGTTA GTAAGTAGCC ATGAATACCA TAAAAATATC
ATTGGTATTT GACTTCACCC CACAACCAAT CATTCATCGG TACTTATGGT ATTTTTATAG

      2050       2060       2070       2080       2090       2100
TGTCAGGTGG CCAGAGCATC ACTGTGTTCA GAACACAACG GCCCACTCAG AACACGCGGA
ACAGTCCACC GGTCTCGTAG TGACACAAGT CTTGTGTTGC CGGGTGAGTC TTGTGCGCCT

      2110       2120       2130       2140       2150       2160
CAATTGAAAG GCACCAACCT CCGTGCTTCC TACCCGTTGT TTTGTTACCG TGTAAACGCA
GTTAACTTTC CGTGGTTGGA GGCACGAAGG ATGGGCAACA AAACAATGGC ACATTTGCGT

      2170       2180       2190       2200       2210       2220
ACTCAACTCT CGGCACTGAA CAGGCTTTTG CTGCAGACCT GGGGTCTGGA GGTGTTGTCT
TGAGTTGAGA GCCGTGACTT GTCCGAAAAC GACGTCTGGA CCCCAGACCT CCACAACAGA

      2230       2240       2250       2260       2270       2280
CTGAGACAGG AAAACTCATC TTGTTACTAT GGCATAGTAG TAACCACGGA GCTCTGAGAT
GACTCTGTCC TTTTGAGTAG AACAATGATA CCGTATCATC ATTGGTGCCT CGAGACTCTA

      2290       2300       2310       2320       2330       2340
AGCCCTGAGC TGGTGCCGTT TAGAAAAGTT TGATGCTTTA GAAAGAAATC GTGGCTTAAA
TCGGGACTCG ACCACGGCAA ATCTTTTCAA ACTACGAAAT CTTTCTTTAG CACCGAATTT

      2350       2360       2370       2380       2390       2400
AGAAGCCTAC CTGGCATGGG GGCCCATCCT CTCCAGCCAT CCGAATCTCA ATCTGGTCGT
TCTTCGGATG GACCGTACCC CCGGGTAGGA GAGGTCGGTA GGCTTAGAGT TAGACCAGCA

      2410       2420       2430       2440       2450       2460
GTGCGTAAGA ATAGAATCCT CGGAATGGTA ACCATGTCTT GCTTTTTCTT CTGGGCTTGC
CACGCATTCT TATCTTAGGA GCCTTACCAT TGGTACAGAA CGAAAAAGAA GACCCGAACG

      2470       2480       2490       2500       2510       2520
TGAGGAAGTC CCAGGCAGCG TAGACGTCTT GGGGGTAGGT CTGGGAAAAA TCTCCCAAGA
ACTCCTTCAG GGTCCGTCGC ATCTGCAGAA CCCCCATCCA GACCCTTTTT AGAGGGTTCT

      2530       2540       2550       2560       2570       2580
TTTTAGGAGG GGCAGGCGGG GGATGAGAAA CTTGGAGATT CGGTAGATCG CTGTAGAGCA
AAAATCCTCC CCGTCCGCCC CCTACTCTTT GAACCTCTAA GCCATCTAGC GACATCTCGT
                                     Putative transcriptional start site (5'- end of rat brain 5'-race product).
      2590       2600       2610       2620       2630       2640
ACTCAGACAG TCGGCGGCCT GAAGAGGACT TGTGCAAACA CTTCCTCTCT GGACAAGGAG
TGAGTCTGTC AGCCGCCGGA CTTCTCCTGA ACACGTTTGT GAAGGAGAGA CCTGTTCCTC

      2650       2660       2670       2680       2690       2700
GAATGCAGGA GGCCACCGCC TGCAGTACAT CTTGGAGTGT TGGAGGGATG TGCCTGCACT
CTTACGTCCT CCGGTGGCGG ACGTCATGTA GAACCTCACA ACCTCCCTAC ACGGACGTGA
                         Corresponds to translational start site in rat/human GLP-2R gene.
      2710       2720       2730       2740       2750       2760
TGTGAAAGGG CGCCAGAAGG ACGAGGCCCC AACCAAGCCC GGCAGTGCCC AGTAGATGCA
ACACTTTCCC GCGGTCTTCC TGCTCCGGGG TTGGTTCGGG CCGTCACGGG TCATCTACGT

      2770       2780       2790       2800       2810       2820
GAGAGCGTCC CTGCCCCGGG CGCACAGTWG GGCTCCCTGC GGCCCAGGGG CCTGAGTCTC
CTCTCGCAGG GACGGGGCCC GCGTGTCAWC CCGAGGGACG CCGGGTCCCC GGACTCAGAG
```

FIG. 1 cont.

Title: GLP-2 RECEPTOR GENE PROMOTER AND USES THEREOF
Inventor(s): Daniel J. DRUCKER
DOCKET NO.: 016777/0463

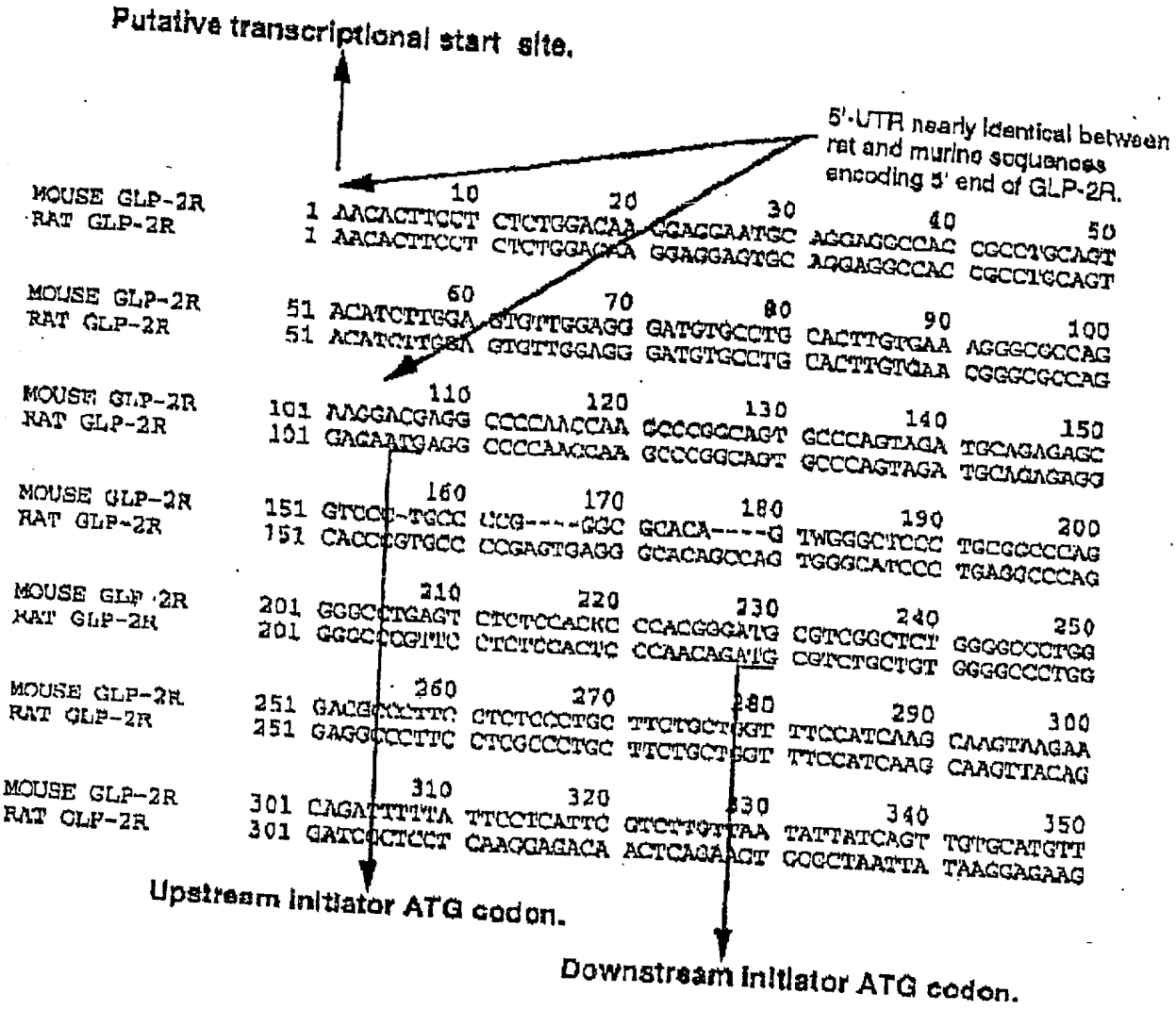
Putative translational start site in murine GLP-2 Receptor gene.

```
2830        2840        2850        2860        2870        2880
TCCACKCCCA CGGGATGCGT CGGCTCTGGG GCCCTGGGAC GCCCTTCCTC TCCCTGCTTC
AGGTGMGGGT GCCCTACGCA GCCGAGACCC CGGGACCCTG CGGGAAGGAG AGGGACGAAG

2890        2900        2910        2920        2930        2940
TGCTGGTTTC CATCAACCAA GTAAGAACAG ATTTTTATTC CTCATTCGTC TTGTTAATAT
ACGACCAAAG GTAGTTCGTT CATTCTTGTC TAAAAATAAG GAGTAAGCAG AACAATTATA

2950        2960        2970        2980        2990        3000
TATCAGTTGT GCATGTTTTC TGAGTGTACA AGCAATTTAG GCCCCGTGTA GGCAATTTGG
ATAGTCAACA CGTACAAAAG ACTCACATCT TCGTTAAATC CGGGGCACAT CCGTTAAACC

3010        3020        3030        3040        3050        3060
GTAAGAATAA AACCATATTA AGAAAATGAG GCTCAACCAC AACCCCAGTA GCATTCTGCT
CATTCTTATT TTGGTATAAT TCTTTTACTC CGAGTTGGTG TTGGGGTCAT CGTAAGACGA

3070        3080        3090        3100        3110        3120
CACTGTTCAT ATTTTGGCTG ATTTTTAAAA AAATTCTCTT TTCTGTGCAT TAITTTACAC
GTGACAAGTA TAAAACCGAC TAAAAATTTT TTTAAGAGAA AAGACACGTA ATAAAATGTG

3130        3140        3150        3160        3170        3180
AGCCGAAATT .......... .......... .......... .......... ..........
TCGGCTTTAA .......... .......... .......... .......... ..........
```

3'-End of murine GLP-2 Receptor gene sequenced to date.

FIG. 1 cont.

Sequence alignment of the 5' end of the mGLP-2 receptor gene with the 5' end of the cDNA encoding the rat GLP-2R.



Sequence alignment of the 5' end of the mGLP-2 receptor gene with the 5' end of the cDNA encoding the rat GLP-2R.

The 5' end of the cDNA encoding the rat GLP-2R (cloned by 5'-RACE) is presented in alignment with the corresponding region of sequence encoding the murine GLP-2R. The upstream initiator ATG codon is present in the rat sequence, and the downstream initiator ATG codon is conserved between in both the rat and murine sequences encoding the GLP-2R. The sequence corresponding to the putative 5'-UTR (untranslated region) is nearly identical between the rat and murine sequences presented.

FIG. 2

FIG. 3

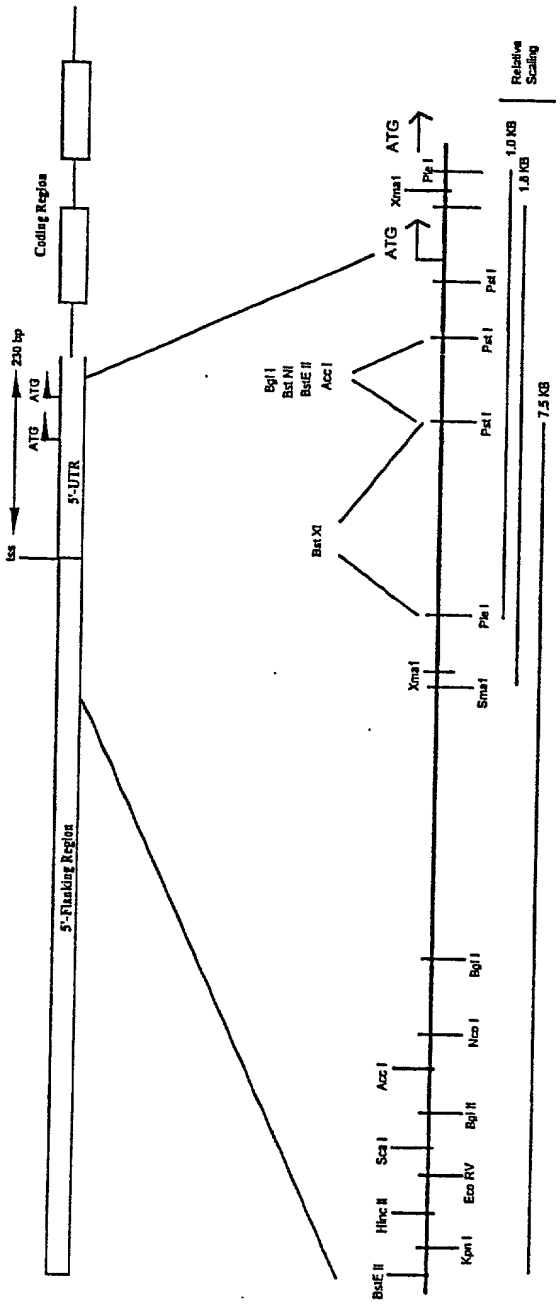
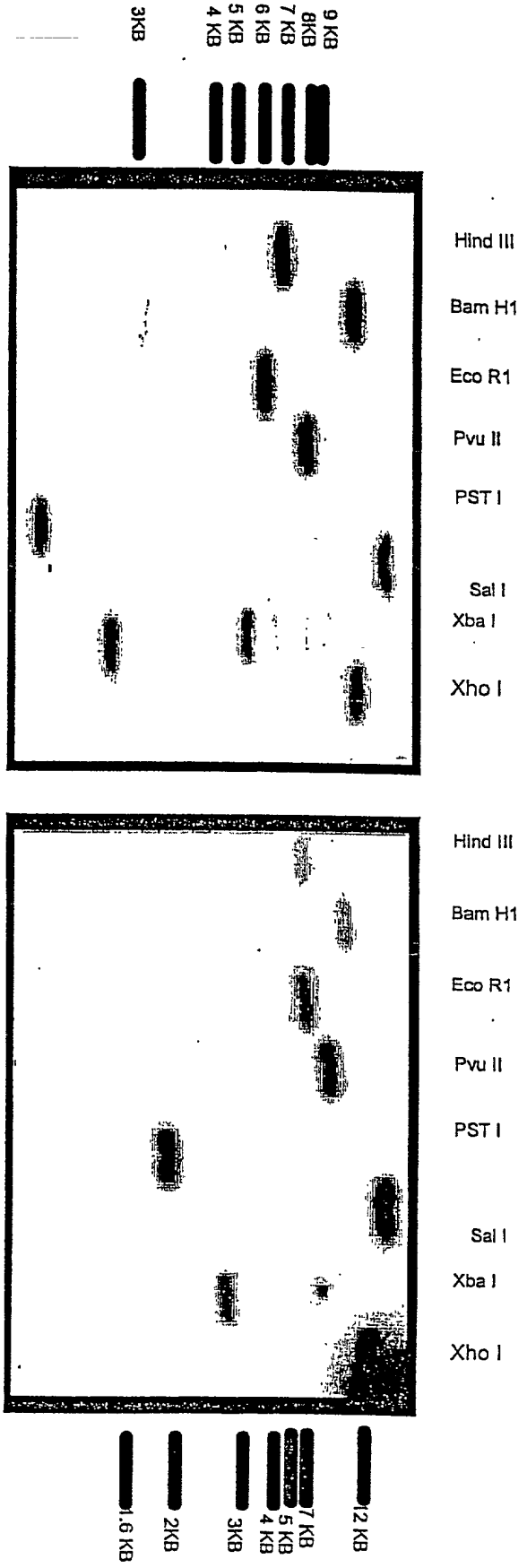

Coding Region
230 bp
ATG
ATG
5'-UTR
tss
5'-Flanking Region
ATG
ATG
Xma I
Pst I
Pst I
Pst I
Pst I
Bgl I
Bst NI
BstE II
Acc I
Bst XI
Pst I
Xma I
Sma I
Bgl I
Nco I
Acc I
Bgl II
Sca I
Eco RV
Hinc II
Kpn I
BstE II
Relative Scaling
1.0 KB
1.8 KB
7.5 KB

FIG. 4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4 KB
5 KB
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7 KB
8KB
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Hind III
Bam H1
Eco R1
Pvu II
PST I
Sal I
Xba I
Xho I
Hind III
Bam H1
Eco R1
Pvu II
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Sal I
Xba I
Xho I
1.6 KB
2KB
3KB
4 KB
5 KB
7 KB
12 KB

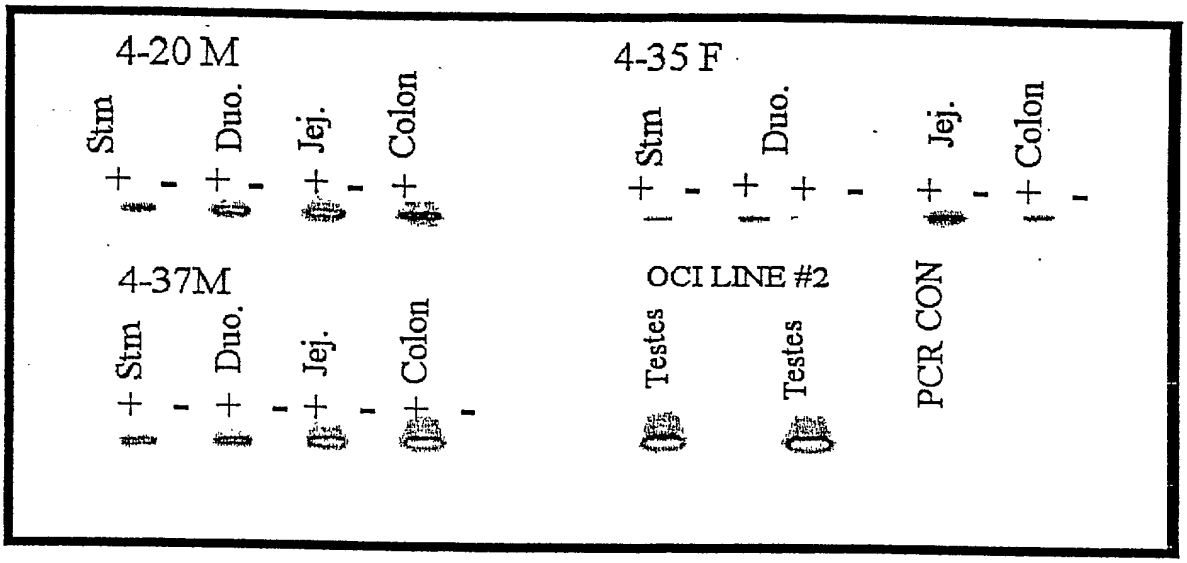

4-20 M
Stm
+
-
Duo.
+
-
Jej.
+
-
Colon
+
-
4-35 F
+ Stm
-
Duo.
+
+
-
Jej.
+
-
Colon
+
-
4-37M
+ Stm
-
Duo.
+
-
Jej.
+
-
Colon
+
-
OCI LINE #2
Testes
Testes
PCR CON

FIG. 5

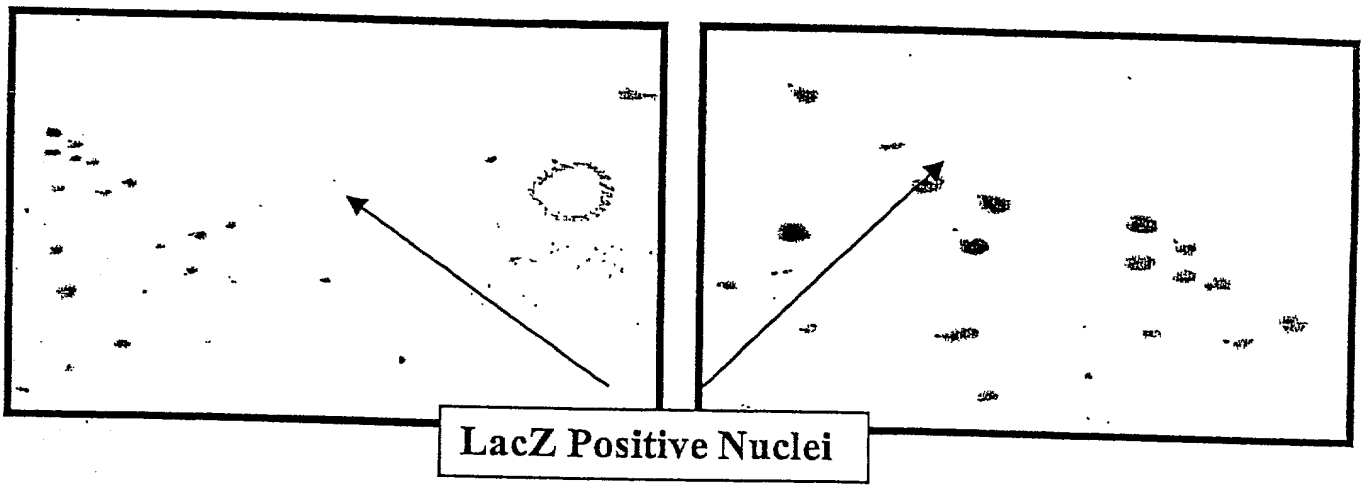


FIG. 6

Title: GLP-2 RECEPTOR GENE PROMOTER AND USES THEREOF
Inventor(s): Daniel J. DRUCKER
DOCKET NO.: 016777/0463

Figure

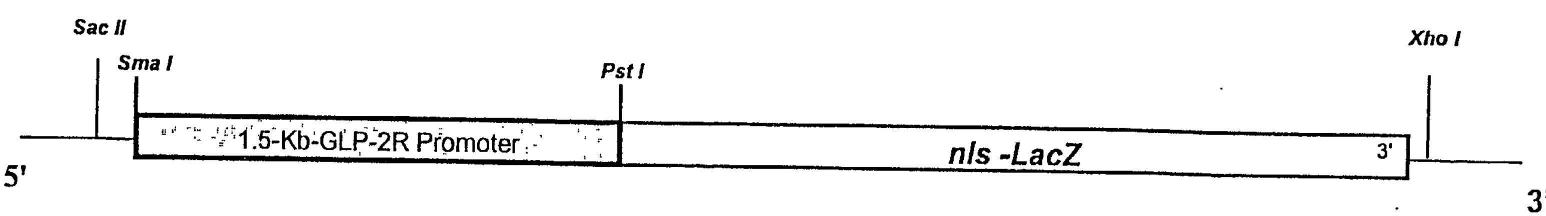
7 a.

```
                 ↓ 5'-end                                            5'-UTR
rat GLP-2R cDNA  aacacttcct ctctggacaa ggaggagtgc aggaggccac cgcctgcagt acatcttgga gtgttggagg gatgtgcctg cacttgtgaa cgggcgccag
                      M   R   P   Q   P   S   P   A   V   P   S   R   C   R   E   A   P   V   P   R   V   R   A   Q   P   V
rat GLP-2R cDNA  gaga ATG AGG CCC CAA CCA AGC CCG GCA GTG CCC AGT AGA TGC AGA GAG GCA CCC GTG CCC CGA GTG AGG GCA CAG CCA GTG
                  G   I   P   E   A   Q   G   P   V   P   L   H   S   Q   Q   M
rat GLP-2R cDNA  GGC ATC CCT GAG GCC CAG GGG CCC GTT CCT CTC CAC TCC CAA CAG ATG
```

7 b.

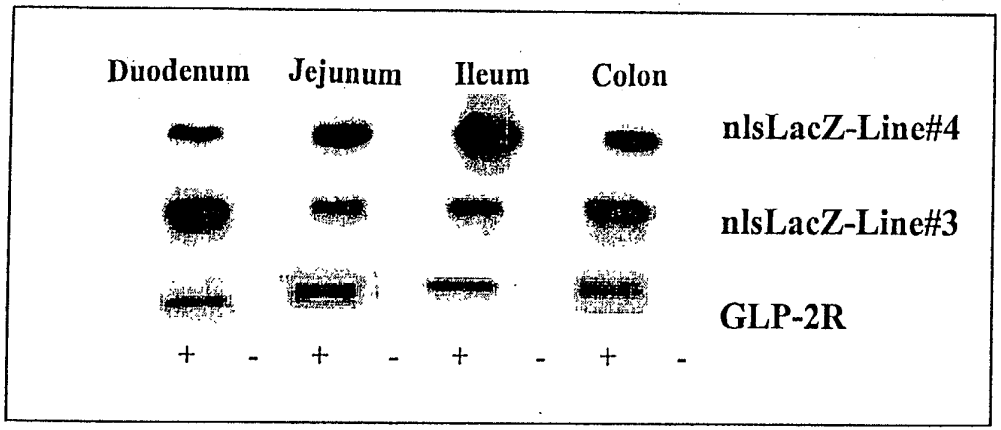
```
mouse GLP-2R  atgtcttgct tttcttctg ggcttgctga ggaagtccca ggcagcgtag acgtcttggg ggtaggtctg ggaaaaatct
human GLP-2R  ccgccttgtt ctttctcctc agcctgtcaa ggaagtccca gaaagcacag ctgacttagg ga-aggtctg ggaaaaatct
        -203                                 NF-Kappa B
mouse GLP-2R  cccaagattt aggaggggca --ggcggggg atgagaaact tggagattcg gtagatcgct gt---agagc aactcagaca
human GLP-2R  ccctgctttt gg-gggggca gggcgggggg atgagccagg gccgagaagg aactctgaag actccgtaga ttgctctaga
        -123                 SpI       Sp1     GATA-1
                                                                +1 ──────────►
rat GLP-2R                                                      aacactt cctctctgga caaggaggag tgcaggaggc
mouse GLP-2R  gtcggcggcc ---------- ------tgaa gaggacttgt gcaaacactt cctctctgga caaggaggaa tgcaggaggc
human GLP-2R  ccgcctcaga cactctcggc gcagcgtgga gaggatttgt gcaaacattt cctctgtgga ccaagaggaa tgcaagagga
         -43                                  CdxA
rat GLP-2R    caccgcc tgca  gtacatctt ggagtgttgg agggatgtgc ctgcacttgt gaacgggcgc caggaga ATG AGG CCC
mouse GLP-2R  caccgcc^tgca^ gtacatctt ggagtgttgg agggatgtgc ctgcacttgt gaaagggcgc cagaagg ACG AGG CCC
human GLP-2R  ggctgcc tgcg  gtgcatctt ggacggctag agagatgtac ccctacttgt gaaggtgcac gaggaag ATG AAG CTG
          38         ^Pst I^
rat GLP-2R    CAA CCA AGC CCG GCA GTG CCC AGT AGA TGC AGA GAG GCA CCC GTG CCC CGA GTG AGG GCA CAG CCA
mouse GLP-2R  CAA CCA AGC CCG GCA GTG CCC AGT AGA TGC AGA GAG C-- --- --- -GT CCC TGC CCC GGG CGC ACA
human GLP-2R  GGA TCG AGC AGG GCA GGG CCT GGG AGA GGA AGC GCG GGA CTC CTG CCT GGC GTC CAC GAG CTG CCC
         114                                                          M   R   R   L   W   G
rat GLP-2R    GTG GGC ATC CCT GAG GCC CAG GGG CCC GTT CCT CTC CAC TCC CAA CAG ATG CGT CTG CTG TGG GGC
mouse GLP-2R  GTW GGG CTC CCT GCG GCC CAG GGG CCT GAG TCT CTC CAC KCC CAC GGG ATG CGT CGG CTC TGG GGC
human GLP-2R  ATG GGC ATC CCT GCC CCC TGG GGG ACC AGT CCT CTC TCC TTC CAC AGG AAG TGC TCT CTC TGG GCC
         180   P   G   T   P   F   L   S   L   L   L   L   V   S   I   K   Q   ↓
rat GLP-2R    GCT GGG AGG CCC TTC CTC GCC CTG CTT CTG CTG GTT TCC ATC AAG CAA
mouse GLP-2R  GCT GGG ACG CCC TTC CTC TCC CTG CTT CTG CTG GTT TCC ATC AAG CAA gtaagaacag---- --atttttat tcctcattc
human GLP-2R  GCT GGG AGG CCC TTC CTC ACT CTG GTC CTG CTG GTT TCC ATC AAG CAA gtaagagcagttca ttattattat tattatcag
         246
```

7 c.



Figure

8 a.



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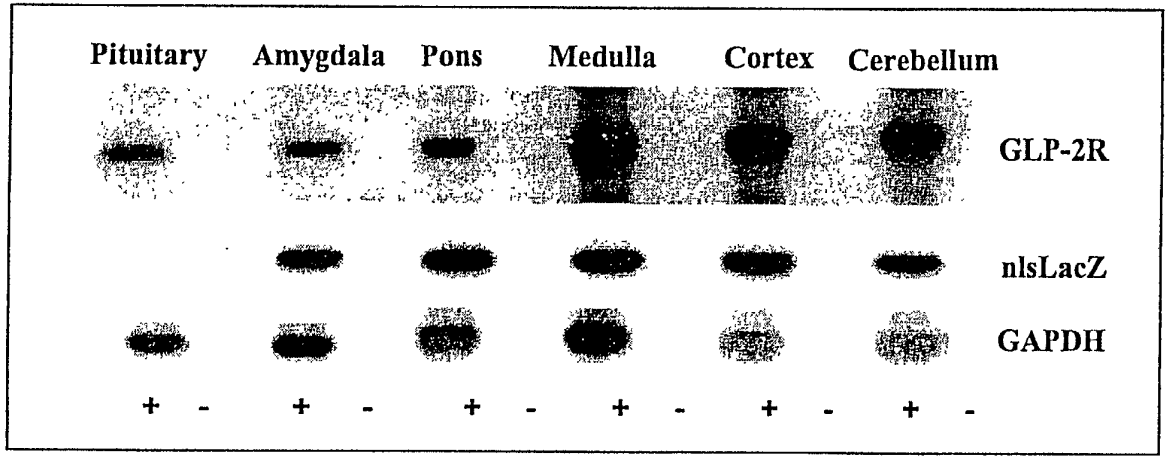

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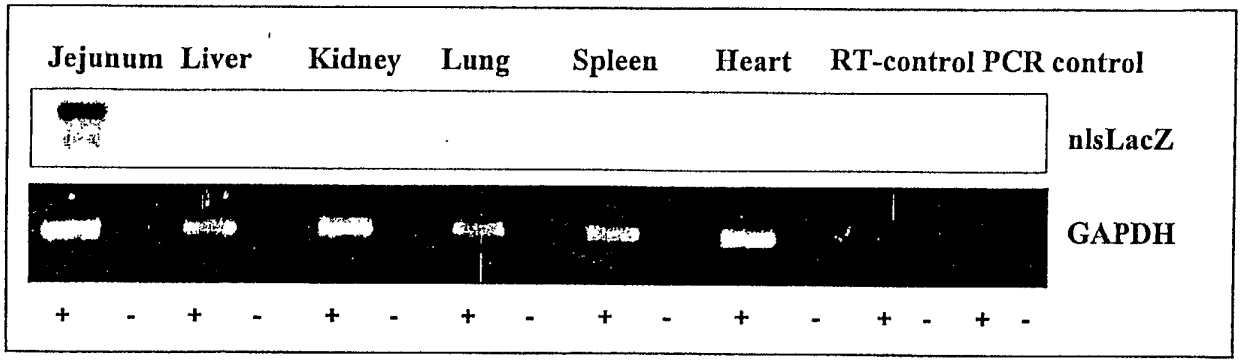

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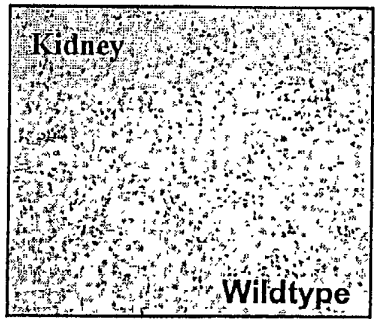
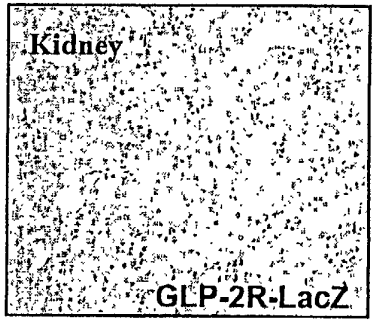
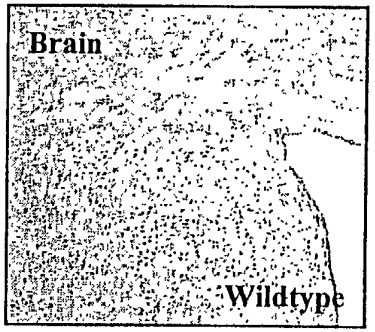
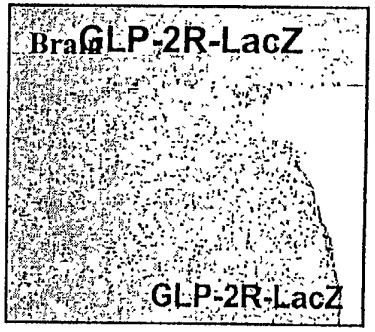


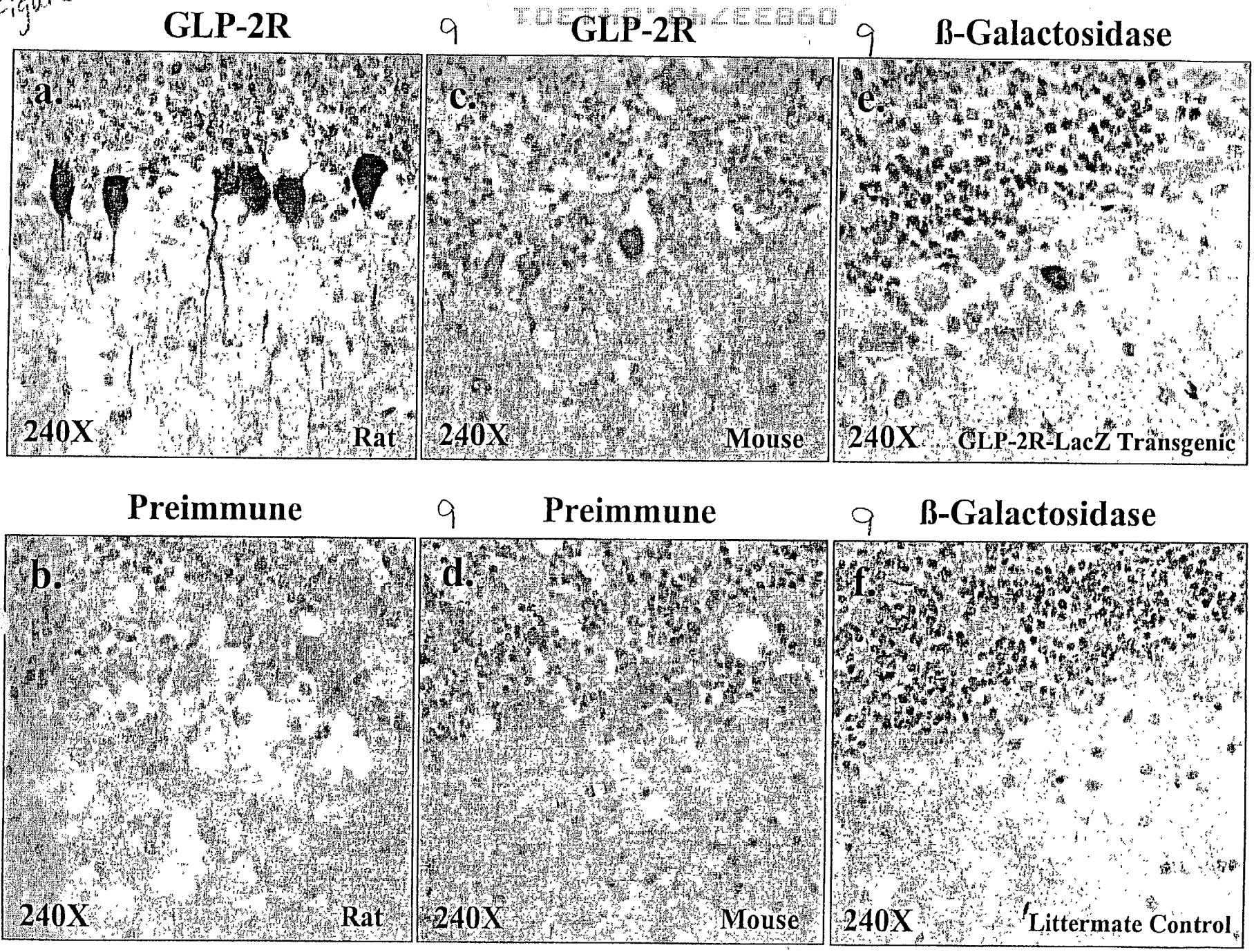






Title: GLP-2 RECEPTOR GENE PROMOTER AND USES THEREOF
Inventor(s): Daniel J. DRUCKER
DOCKET NO.: 016777/0463

Figure



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DOCKET NO.: 016777/0463

Figure

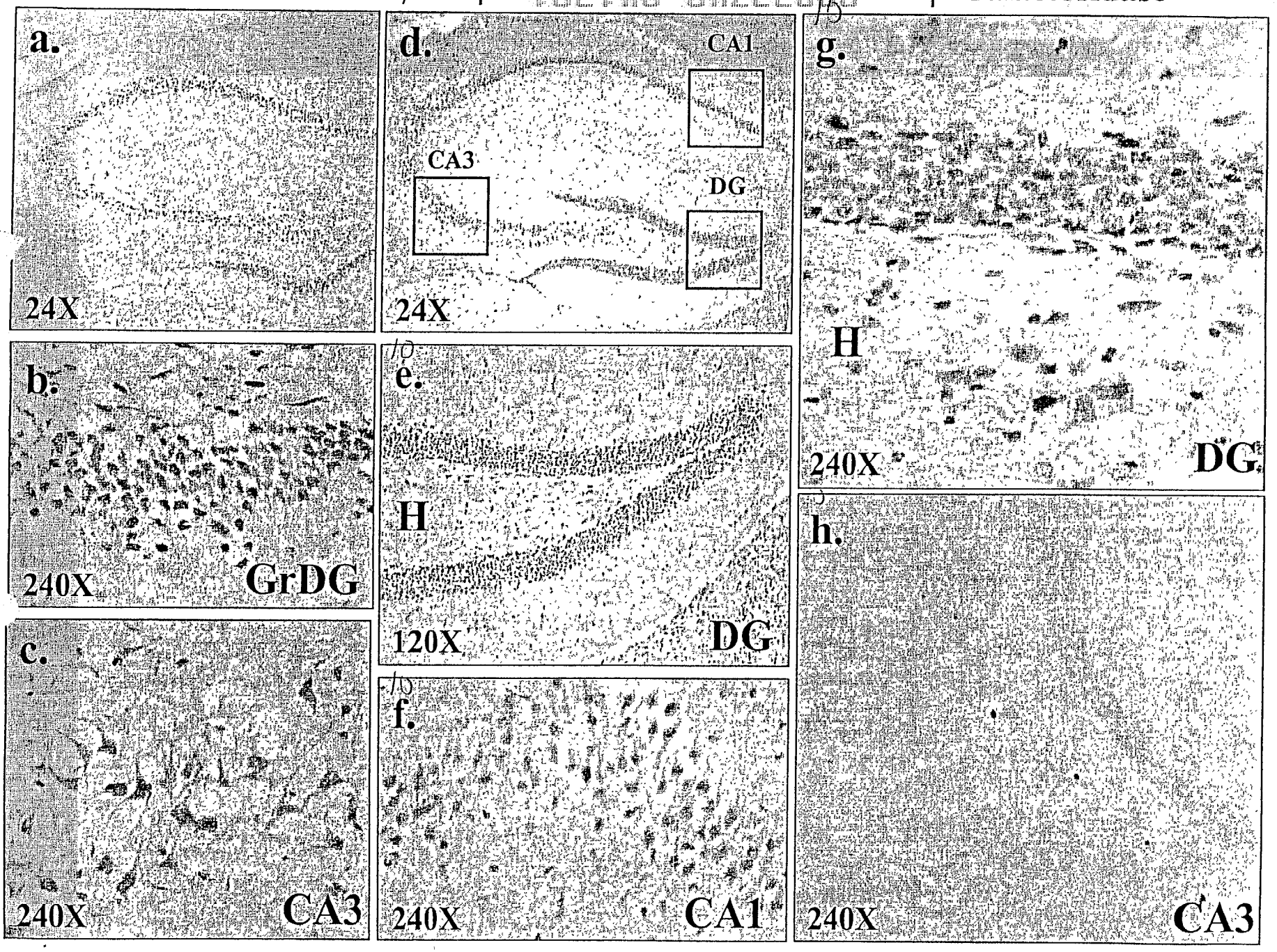

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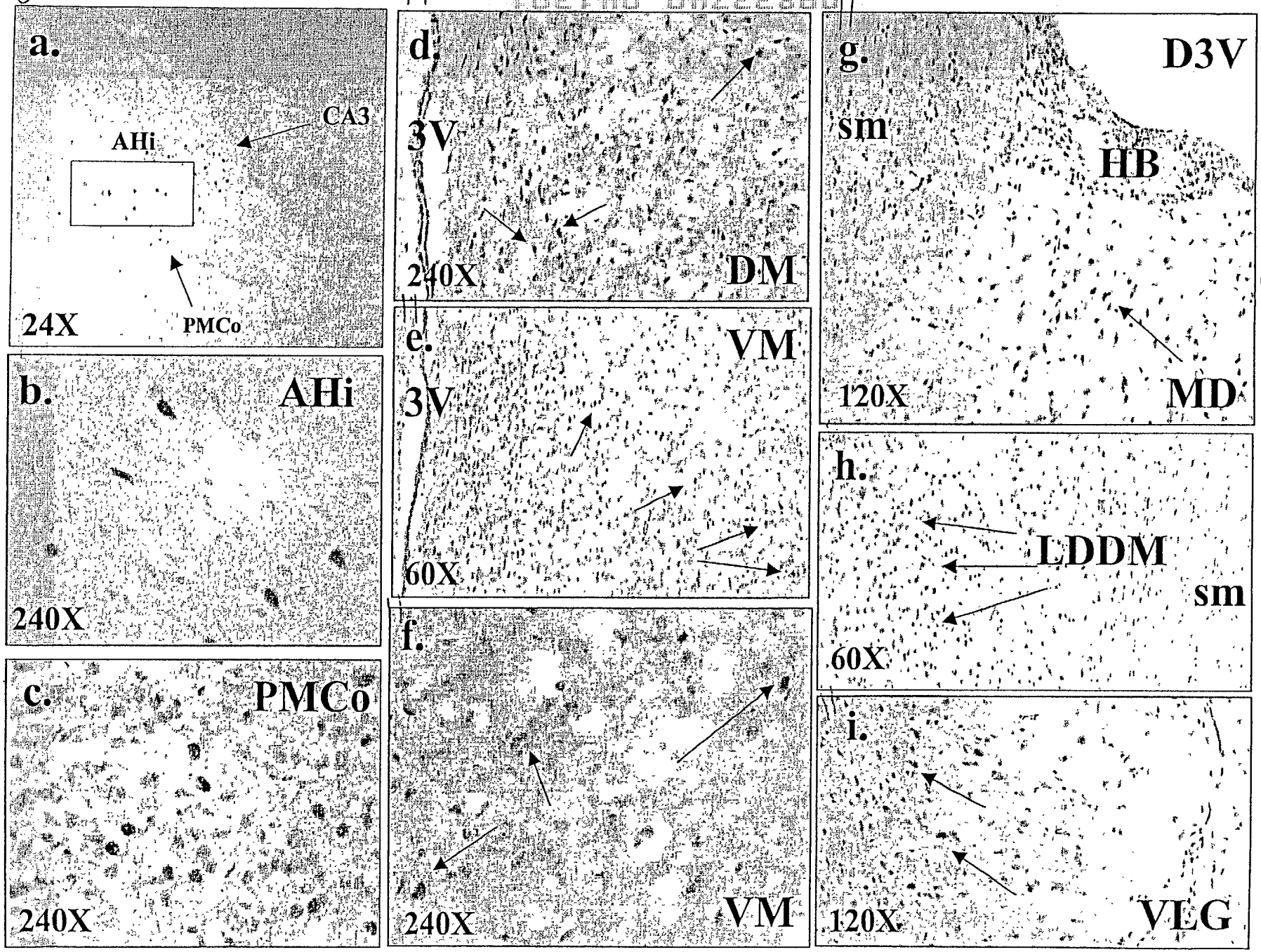
Figure



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